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CURRENT INDUSTRIAL REPORTS

Mining Machinery and Mineral Processing Equipment

1985

MA35F(85)-1
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U.S. Department of Commerce
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SUMMARY OF FINDINGS

In 1985, manufacturers' value of shipments of selected types of mining machinery and related equipment totaled $923.7 million, an increase of 8 percent from the 1984 figure of $855.3 million.

The 1985 total included shipments of $309.1 million of underground mining machinery and equipment which was a 11-percent increase from the 1984 total of $278.2 million. Mineral processing and benefication equipment totaled $73.7 million in 1985, an increase of 28 percent from the 1984 total of $57.8 million. Stationary, crushing, pulverizing, and screening machinery totaled $187.0 million in 1985, a increase of 23 percent from the 1984 total of $152.5 million. Portable crushing, pulverizing, and screening machinery totaled $13.6 million in 1985, an increase of 43 percent from the 1984 total of $9.5 million. Underground drills and breakers totaled $104.7 million in 1985, an decrease of 16 percent from the 1984 total of $124.3 million. Portable drilling rigs totaled $184.9 million in 1985, a decrease of 1 percent from the 1984 total of $186.4 million. Mine conveyors totaled $41.9 million in 1985, an increase of 9 percent from the 1984 total of $38.3 million. Mine hoists data are disclosed in 1985. Underground locomotives totaled $8.8 million in 1985, an increase of 29 percent from the 1984 total of $6.8 million.

A description of the survey methodology and related information may be found on page 6.

Table 1. MANUFACTURERS' SHIPMENTS OF MINING MACHINERY AND MINERAL PROCESSING EQUIPMENT, BY TYPE: 1985 AND 1984

(Quantity in units except as specified; value in thousands of dollars)

Product code	Product description	Number of companies	1985		1984	
			Quantity	Value	Quantity	Value
35325 --	Underground mining machinery (except parts sold separately)	40	(X)	309,080	(X)	278,229
35325 14	Cutting machines, shortwall and universal	3	(D)	(D)	(D)	(D)
	Longwall mining machines, coal type:					
35325 16	Plows	1	-	-	-	-
35325 18	Shearer or cutter loader	3	(D)	(D)	(D)	(D)
35325 19	Powered roof supports for longwall mining	-	-	-	-	-
	Loader machines, underground mine:					
35325 33	Gathering arm type	2				
35325 35	Loader-hauler-dumper (LHD)	3	(X)	50,935	(X)	54,887
35325 37	Scoops, shovels, buckets, all types	5				
35325 38	All other, including slusher hoists	1				
	Continuous mining machines, borer, ripper, auger, and drum (including road-heading machines):					
35325 43	Coal	6	240	131,220	223	112,190
35325 42	Other than coal	3				
	Face-haulage vehicles, rubber tired, self-propelled:					
35325 57	Coal	6	227	35,873	229	34,727
35325 59	Other than coal	4	66	7,013	54	5,702
35325 58	Ratio feeders and feeder breakers	6	184	17,463	187	15,658
35325 75	Mine cars, track, haulage	7	813	9,096	452	4,953
35325 77	Rock dusters	5	241	3,411	230	2,412
	Support vehicles, rubber tired or track mounted:					
	Self-propelled:					
35325 72	Coal	9	175	6,200	157	4,926
35325 73	Other	5	127	5,160	99	2,713
	Towed:					
35325 76	Coal	7	136	2,545	289	5,126
35325 78	Other	3				
35325 98	Other underground mining machinery, not elsewhere classified	9	398	24,718	312	22,407

See footnotes at end of table.

Address inquiries concerning these figures to U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233, or call Mary Ellickson, (301) 763-5440.
For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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Table 1. MANUFACTURERS' SHIPMENTS OF MINING MACHINERY AND MINERAL PROCESSING EQUIPMENT, BY TYPE: 1985 AND 1984--Continued

(Quantity in units except as specified; value in thousands of dollars)

Product code	Product description	Number of companies	1985		1984	
			Quantity	Value	Quantity	Value
35326 --	Mineral processing and beneficiation equipment (except parts sold separately).	51	(X)	73,681	(X)	57,776
35326 52	Flotation machines (quantity represents number of cells)	3				
35326 53	Dense medium vessels	3	225	7,340	277	5,690
35326 54	Jigs	4				
35326 55	Tables, concentrating	1				
35326 56	Classifiers, sizing, washing, and dewatering (excluding cyclones)	14	407	12,752	313	9,197
35326 57	Cyclones, wet (including heavy medium cyclones)	7	1,400	5,150	1,655	5,357
35326 58	Centrifuges	5	207	14,830	180	7,957
35326 59	Centrifugal dryers	5				
35326 61	Scrubbers (all types including drums, log washers, attritioning machines, etc.)	5	93	2,893	119	3,174
35326 62	Dryers, thermal	5	46	1,457	57	2,024
35326 63	Spirals, concentrating	2				
35326 64	Thickeners (excluding wet cyclones)	3	(S)	3,976	(S)	5,060
35326 65	Filters (quantity represents area in square feet)	4				
	Feeders:					
	Vibrating:					
35326 71	Electromagnetic	4	1,433	13,642	1,200	10,745
35326 72	Mechanical	18				
35326 73	Reciprocating	6	114	3,049	86	2,621
35326 74	Apron	4				
35326 67	Magnetic separators (quantity represents number of drums)	3	48	561	105	1,211
35326 69	Other mineral classifying, flotation, separating, concentrating, cleaning, clarifying, and related equipment (except parts)	7	(X)	8,031	(X)	4,740
35327 --	Crushing, pulverizing, and screening (except portable) machinery (except parts sold separately)	61	3,878	187,011	r3,500	r152,503
	Crushers, stationary type (including skid mounted):					
	Gyratory:					
35327 10	Cone type	9	175	27,696	129	19,110
35327 12	Other	3				
35327 13	Impact	15	312	17,771	359	15,211
35327 17	Jaw	17	117	8,873	95	4,392
35327 19	Roll	15	175	8,471	116	7,057
	Portable crushing, screening, washing, and combination plants:					
	Crushing plants (classification based upon the type of crusher first in the processing flow):					
35319 41	Gyratory (cone)	7	55	13,604	44	9,539
35319 42	Impact	11	39	6,793	18	2,872
35319 43	Jaw	11	57	12,457	44	8,841
35319 44	Roll	5	4	525	8	906
35319 45	Screening plants	9	86	4,976	82	4,529
35319 46	Washing and other plants	5	25	1,032	29	r1,199
	Grinding mills and pulverizers:					
35327 33	Ball	5				
35327 37	Rod	1	98	29,876	89	31,847
35327 41	Other including autogenous and semiautogenous, ring roll pulverizers, and airswept hammermills	3				
	Screens, vibrating, stationary:					
35327 56	Horizontal	16	629	10,830	490	8,631
35327 57	Inclined	19	1,189	21,024	1,233	20,521
53527 58	Other, including trommell	9	306	6,802	239	5,812
35327 59	Other crushing, pulverizing, and screening machinery, not elsewhere classified	8	572	16,281	525	12,036
35328 --	Drills and other mining machinery, not elsewhere classified (except parts)	39	9,737	104,741	15,749	124,251
	Drills and breakers:					
	Face drills:					
	Rock drills:					
	Air powered:					
35328 01	Track mounted or self-propelled	4	382	15,827	297	17,282
35328 02	Rubber tired mounted or self-propelled	2				
35328 05	Hand-held	5	4,809	5,024	6,870	4,291
	Hydraulic powered:					
35328 08	Track mounted or self-propelled	5	159	19,549	162	24,699
35328 09	Rubber tired mounted of self-propelled	3				
35328 10	Hand-held	-	-	-	-	-
	Coal drills:					
35328 06	Mounted, unmounted or self-propelled	7	71	771	125	3,334
35328 07	Hand-held	1				
35328 13	Core drills, mineral exploration	8	274	8,357	325	8,802
	Roof bolters:					
35328 52	Coal	10	266	30,121	381	36,997
35328 53	Other than coal	1				
35328 60	Impact breakers, mounted (including air and hydraulic)	2	1,029	11,908	870	8,422
	All other mining machinery and equipment (except parts sold separately):					
35328 70	Rubber tired	4				
35328 80	Other than rubber tired	16	2,747	13,184	6,719	r20,424

See footnotes at end of table.

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Table 1. MANUFACTURERS' SHIPMENTS OF MINING MACHINERY AND MINERAL PROCESSING EQUIPMENT, BY TYPE: 1985 AND 1984--Continued

(Quantity in units except as specified; value in thousands of dollars)

Product code	Product description	Number of companies	1985		1984	
			Quantity	Value	Quantity	Value
35335 pt.	Portable drilling rigs	29	2,802	184,882	3,196	186,414
	Portable drilling rigs with pull-back capacity (water well, mineral exploration, shallow oil, and gas):					
35335 11	Cable tool (all sizes)	3	(1)	(1)	(1)	(1)
35335 13	Reverse circulation (18" or larger)	1	(1)	(1)	-	-
	Rotary, trailer and truck mounted with pull-back capacity:					
35335 21	Up to 14,999 lbs	7	107	5,100	70	2,679
35335 23	15,000 to 29,999 lbs	8	63	10,986	r43	r8,843
35335 25	30,000 to 59,999 lbs	8	62	15,437	108	26,963
35335 27	60,000 to 74,999 lbs	6	70	26,151	r64	r19,916
35335 29	75,000 lbs. and over	7	18	9,497	47	19,476
	Blasthole drills, rotary:					
	Truck mounted:					
35335 31	Up to 29,999 lbs	-	-	-	-	-
35335 33	30,000 to 59,999 lbs	4	42	16,179	r53	16,487
35335 35	60,000 lbs. and over	2				
	Track mounted:					
35335 37	Up to 29,999 lbs	5	76	18,750	76	13,044
35335 38	30,000 to 59,999 lbs	7	92	25,030	85	22,094
35335 39	60,000 lbs. and over	6	39	29,652	34	22,360
	Construction drills:					
35335 41	Bucket drills	2	248	12,602	275	15,790
35335 43	Auger drills	6				
35335 49	Other portable drilling rigs, including workover (service) rigs	11	1 1,985	1 15,498	1 2,341	1 18,762
	Related mining machinery and equipment:					
	Underground conveyors, mine (quantity represents number of drives)	16	641	41,892	r693	r38,306
	Panel and main line:					
35355 71	Coal	9	206	17,726	231	16,785
35355 72	Other than coal	3	29	2,326	44	3,482
	Bridge:					
35355 73	Coal	3	(D)	(D)	(D)	(D)
35355 74	Other than coal	-	-	-	-	-
35355 64	Armored flexible conveyors for longwall mining	2	(D)	(D)	(D)	(D)
	All other underground mine conveyors:					
35355 75	Coal	3	(D)	(D)	(D)	(D)
35355 77	Other than coal	-	-	-	-	-
35361 14	Hoists, mine shaft and slope wire hoists; drum or friction, electric or hydraulic (excluding tuggers, sheaves, skips, cages, and buckets)	4	(D)	(D)	74	1,511
	Locomotives, underground mine:					
37431 13	Trolley (electric)	5	51	5,063	19	1,656
37431 14	Battery	6	99	3,706	r126	r5,081
37431 16	Diesel	2				

Note: The percent of estimation of each item is indicated as follows (see "Description of Survey" for a discussion of estimation of missing reports): b26 to 50 percent of this item is estimated.

- Represents zero. (D) Data withheld to avoid disclosing figures for individual companies. pt. Part. rRevised by 5 percent or more from previously published figures. (S) Suppressed. Data did not meet publication standards of the Bureau of the Census. (X) Not applicable.

1Data for code 35335 11 is combined with code 35335 49 for 1984 to avoid disclosing figures for individual companies.

Table 2. COMPARISON OF VALUES OF SHIPMENTS OF MINING MACHINERY AND MINING PROCESSING EQUIPMENT, AS REPORTED IN THE MA35F, THE 1984 ANNUAL SURVEY OF MANUFACTURES, AND THE 1982 CENSUS OF MANUFACTURES

(Value in thousands of dollars)

Product code	Product description	1984			1982	
			Annual Survey of Manufactures			
		MA35F	Value	Standard error of estimates[1]	MA35F	Census of Manufactures
3532--	Mining machinery	(2)	(2)	1	(2)	1,936.3
35325	Underground mining machinery	278.2	306.8	1	443.8	448.6
35326	Mineral beneficiation machinery	57.8	59.5	1	92.6	91.3
35327	Crushing, pulverizing, and screening machinery	r152.5	133.9	1	176.8	182.4
35328	Underground drills and breakers	124.3	115.6	1	133.6	129.9
35329	Parts and attachments for mining machinery	(2)	890.0	1	(2)	983.8
35320 00	Mining machinery n.s.k., typically for establishments with 10 employees or more (see note)	(2)	72.3	2	(2)	46.1
35320 02	Mining machinery n.s.k., typically for establishments with less than 10 employees (see note)	(2)	(2)	(2)	(2)	54.3
35335	Portable drilling rigs	(2)	238.5	(2)	(2)	332.3
35335 10	Drills	186.4	(2)	(2)	409.2	415.4
35335 78	Parts for drills	(2)	(2)	(2)	(2)	116.9
35319 pt.	Portable crushing, screening, washing, and combination plants	27.8	(2)	(2)	50.8	51.6
35355 pt.	Underground mining conveyors	38.3	(2)	(2)	54.4	(NA)
35361 pt.	Mining hoists	1.5	(2)	(2)	7.9	7.9
37431 pt.	Underground mining locomotives	6.7	(2)	(2)	23.3	22.8

Note: In the 1982 Census of Manufactures, shipment data for establishments of small companies, typically those with fewer than 10 employees, were estimated from administrative records data rather than collected on census questionnaires. These shipments are included in product code 35320 02. Products not adequately identified by detail product were coded to the appropriate product class (five-digits) followed by "00," or in some cases to the appropriate industry (four-digits) followed by "000."

(NA) Not available. n.s.k. Not specified by kind (most of these data are derived from administrative records). pt. Part. rRevised by 5 percent or more from previously published figures.

[1]The annual survey of manufactures percentage standard errors shown are the approximate relative errors of the estimates of level. A more detailed description of the standard error of estimate is given in the introduction of the annual survey of manufactures, Value of Product Shipments, M34(AS)-2, under "Qualifications of the Data."

[2]Available only from the annual survey of manufactures and census of manufactures. Partial product class codes are collected only in the census of manufactures.

Table 3. SHIPMENTS AND EXPORTS OF SELECTED MINING MACHINERY AND MINERAL PROCESSING EQUIPMENT: 1985 AND 1984

(Quantity in units; value in thousands of dollars)

Product description[1]	Manufacturers' shipments		Exports of domestic merchandise[1,2]			Percent exports to manufacturers' shipments	
	Quantity	Value	Quantity	Value at port	Estimated producers' price[3] (value)	Quantity	Value
1985							
Coal cutting, continuous mining, and longwall mining machines	368	132,879	130	30,152	24,064	35	23
Loaders, underground mine type	529	50,935	55	2,768	2,209	10	5
Mineral crushing, pulverizing, and grinding machines, stationary	1,449	108,968	444	11,467	9,152	31	11
Crushing, grinding, pulverizing, screening, and washing machines for minerals, portable[4]	266	39,387	141	7,059	5,634	(X)	18
Screening and vibrating machines and trommels for minerals, stationary[4]	2,124	35,656	574	4,115	3,284	27	12
Underground mine conveyors[5]	487	31,536	427	1,664	1,328	88	5
Drilling and boring machines for oil, gas, and waterwell drilling[4]	2,802	184,882	316	167,198	133,441	11	72
Drilling and boring machines n.s.p.f., for mining and construction[4]	9,737	106,367	894	79,237	63,239	9	74
1984							
Coal cutting, continuous mining, and longwall mining machines	398	122,694	79	9,173	7,950	20	7
Loaders, underground mine type	611	54,887	71	3,343	2,897	12	6
Mineral crushing, pulverizing, and grinding machines, stationary	1,313	89,653	472	11,832	10,255	36	13
Crushing, grinding, pulverizing, screening, and washing machines for minerals, portable[4]	225	27,886	270	12,106	10,492	(X)	43
Screening and vibrating machines and trommels for minerals, stationary[4]	1,962	34,964	653	6,555	5,681	33	19
Underground mine conveyors[5]	474	30,058	281	1,403	1,216	59	4
Drilling and boring machines for oil, gas, and waterwell drilling[4]	3,196	186,414	292	140,767	122,003	9	76
Drilling and boring machines n.s.p.f., for mining and construction[4]	15,749	124,251	742	62,262	53,962	5	50

Note: Comparable data for imports of mining machinery are not available separately.

N.s.p.f. Not specifically provided for. (X) Not applicable.

[1]See table 4 for comparison of SIC codes with Schedule B export numbers.

[2]Source: Bureau of the Census report EM 546, U.S. Exports.

[3]Estimated producers' value is derived by use of adjustment factors to exclude freight, insurance, and other charges incurred in moving goods to the port of export. This adjustment is made to convert the values to an approximation of the producers' value of exported goods. Current adjustment factors are based on data for 1981 which are published in Origin of Exports of Manufactured Products, M81(AS)-5, appendix B. The adjustment factor for this report is 0.7981.

[4]Part of this code is comparable. See text for explanation of comparison of exports, imports, and domestic output data.

[5]Quantity for this code is collected in different unit of measure, MA35F data are collected in number of drives and export data are collected in number of units.

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Table 4. COMPARISON OF SIC-BASED PRODUCT CODES AND SCHEDULE B EXPORT NUMBERS FOR 1985

Product code	Product description	Schedule B export number[1]
35325 14, 16, 18, 19, 43, 42	Coal cutting machines, continuous mining machines, and longwall mining machines	664.0507
35325 33, 35, 37, 38	Loaders, underground mine type	664.1065
35327 10, 12, 13, 17, 19, 33, 37, 41, 59,	Mineral crushing, pulverizing, and grinding machines, stationary	678.2018
35319 41, 42, 43, 44, 45, 46	Crushing, grinding, pulverizing, screening, and washing machines for minerals, portable	*678.2013
35327 56, 57, 58	Screening and vibrating machines and trommels for minerals, stationary	*678.2014
35355 64, 71, 72, 73, 74, 75, 77	Underground mine conveyors	664.1033
35335, 11, 13, 21, 23, 25, 27, 29, 31, 33, 35, 37, 38, 39, 41, 43, 49	Drilling and boring machines, rotary, for oil and gas well drilling	*664.0508
	Drilling and boring machines for oil and gas well n.s.p.f.	*664.0509
	Drilling and boring machines rotary, for water well drilling	*664.0511
	Drilling and boring machines for water well drilling n.s.p.f.	*664.0512
35328 01, 02, 05, 08, 09, 10, 06, 07, 13, 52, 53, 60, 70, 80	Drilling and boring machines n.s.p.f., for mining and construction	*664.0513

*Part of this code is comparable. N.s.p.f. Not specifically provided for.

[1]Source: Bureau of the Census report EM 546, U.S. Exports.

DESCRIPTION OF SURVEY

Scope of Survey. This survey covers firms engaged in the manufacture of underground mining machinery; mineral processing and beneficiation machinery and equipment; crushing, pulverizing, and screening machinery; portable oil and gas and water drilling rigs; and related mining machinery and equipment, including underground drills and breakers, conveyors and hoists, and mine cars and locomotives.

Survey Methodology. The statistics in this publication were collected by mail on Bureau of the Census annual Form MA35F, Mining Machinery and Mineral Processing Equipment. The survey panel includes all known manufacturers of mining machinery and mineral processing equipment, approximately 181 companies.

Reliability of Data. Survey error may result from several sources. (1) inability to obtain information about all cases in the survey; (2) response errors; (3) definitional difficulties; (4) differences in the interpretation of questions; (5) mistakes in recording or coding the data obtained; and (6) other errors of collection, response, coverage, and estimation for missing data. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is due to imputing data for nonrespondents, for late reporters, and for data which fail logic edits. Missing figures are imputed based on yearly movements shown by reporting firms. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is not precisely known but is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

Revisions to Previous Period Data. Statistics for previous years may be revised as the result of corrected data from respondents, late reports for which imputations were made as described above, or other corrections. Figures which have been revised by more than 5 percent from previously published figures are indicated by footnotes.

Revisions include changes to prior period data resulting from reconciliation of the results of this survey with the 1984 Annual Survey of Manufactures to correct differences in reported data between the two series and to identify and verify new establishments included in the scope of this survey. Table 2 presents a comparison of data from the two series by census product class following the reconciliation.

Adjustment for Price Change. All dollar figures included in this publication are in current dollars; i.e., they have not been adjusted for price change.

EXPLANATION OF TERMS

Quantity and Value of Shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable sales to unaffiliated customers; i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Mining Machinery. Heavy machinery and equipment used by the mining industry in the exploration and development of solid mineral properties. Mining is used here in the broad sense to include the extraction of solid minerals occurring naturally, such as coal and ores. The term mining also includes quarrying, milling (crushing, screening, washing, flotation, etc.), and other preparations customarily done at the mine site or as a part of mining activity. Portable drilling rigs for use in oil and gas fields or for drilling water wells are also included for the purpose of this survey.

Auger Drills. Machines which utilize continuous flight auger bits for removing cuttings.

Bucket Drills—Machines which rotate a bucket and remove cuttings by lifting the bucket to be dumped.

Cable Tool. Machines using percussion-type tools and cleaning the hole with tubular-type bailing tools.

Centrifugal Dryers. Devices for the removal of different densities by means of centrifugal action.

Centrifuges. Devices for classifying materials of different densities by means of centrifugal action.

Classifiers, Sizing, Washing, and Dewatering (Excluding Cyclones). Machines for making size separations of ores or for separating ore from the vein matter or cleaning coal from slack.

Cyclones, Wet. Devices designed to make a size separation or remove a constituent, such as water, from a material in process by means of centrifugal force.

Dense Medium Vessels. Separatory vessels for the treatment of ores by the sinkfloat principle, using fluid medium, the density of which lies between that of the materials to be separated.

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Dryers, Thermal. Machines for reducing moisture content of a mineral product by means of heat.

Feeders, Apron, Vibrating, Reciprocating. Devices for the uniform feeding of coal and ores to crushers, mixers, dryers, furnaces, and conveyors.

Filters. Disk, drum, and pan filters for dewatering pulps and flotation concentrates.

Flotation Machines. Machines in which finely crushed ore (mineral and valueless gangue) is agitated in water with the addition of air or other gas and a reagent (chemical or oil), which causes the mineral particles to attach themselves to the air of gas bubbles that rise to the surface, where the mineral particles are removed in froth known as concentrate.

Jigs. Machines to separate heavier from lighter materials by agitation in water.

Magnetic Separators. Devices broadly classified as concentrators, purifiers, reclaimers, and protectors. Magnets of special design fit the needs of these applications.

Portable Drilling Rigs. Drills mounted on a carrier and used on the surface (above ground).

Pull-Back Capacity. Lifting capacity of drawworks or hoisting capacity of taphead.

Pull-Down Capacity. Capacity to apply bit pressure.

Reverse Circulation. Machines using a rotary drilling process where the drill cuttings and fluid return to the surface inside the drill stem (large diameter holes, 18" or larger).

Rotary Drills. Machines using rotary drill pipe, continuous fluid, and a mud pump, air compressor, or combination to clear the hole of filling.

Screens, Vibrating. Machines used for dry or wet screening applications, such as sizing, washing, and dewatering of ores, coal, sand, and gravel.

Scrubbers (All Types, Including Drums, Log Washers, Attritioning Machines, Etc.). Devices for mechanically removing any undesirable material from the surface of a mineral product.

Spirals, Concentrating. A spiral chute that separate heavy from light particles by centrifugal action.

Table, Concentrating. Devices for separating finely crushed particles of coal or ore from the worthless rock or vein matter by taking advantage of differences in particle density and size.

Thickeners (Excluding Wet Cyclones). Devices for the separation of solids from the liquids in which they are suspended by introducing the suspension into tanks of basins to permit gravitational settling or sedimentation of the solids.

Unit. Complete rig, including carrier.

COMPARISON OF EXPORT, IMPORT, AND DOMESTIC OUTPUT DATA

The Standard Industrial Classification (SIC) system used for domestic output and the statistical export and import commodity classifications were developed independently. This results in considerable difficulty in comparing the three types of data for many commodity areas. The domestic output classification is based on type of industry; on the other hand, the export and import classification system is more materials oriented. Also, there are a substantial number of imported commodities which have no comparable domestic output classification. The relationships shown in this report should be considered only as approximations, since, in addition to the problems mentioned above, there are also the following problems affecting the comparability of the three sets of data.

Valuation. There are different methods of valuation for the three types of data:

- *Domestic Output*— Valued at the point of production. It includes the net sales price, f.o.b. plant, after discounts and allowances, exclusive of freight charges and excise taxes.

- *Exports*— Valued at the point of exportation. It includes the selling price, or cost if not sold, and inland freight, insurance, and other charges to the export point.

  Estimated producers' values of exports have also been developed. These values more closely approximate the values reported for domestic output because they exclude freight, insurance, and other charges applied from the producing plant to the export point.

- *Imports*— Valued at the first port of entry in the United States. It includes c.i.f. (cost, insurance, and freight), duty, and other charges to the import point.

Duplication in Quantity and Value of Output. Because producers' shipments of some commodities may be used as materials for incorporation into other commodities, combinations of data for such commodities may contain a certain amount of duplication. Thus, percentages of exports to output or imports to apparent consumption (output plus imports minus exports) at four-digit or broader levels may be understated. Where duplication is known to be substantial, the output data are appropriately noted in the table.

Low-Value Import and Export Transactions. Detailed commodity information is not included for individual export shipments valued at not more than $1,000. Generally, detailed commodity information is not included for individual import shipments valued at

not more than $1,000. For textiles and textile products, gloves, footwear, and miscellaneous rubber and plastics products, detailed commodity information is not included for individual import shipments valued at not more than $250. This is believed to have only negligible effects on the statistics for the bulk of the commodities.

Manufacturers' Shipments, Not Specified by Kind. The value of manufacturers' shipments at the four-digit industry level often includes a small amount which is not distributed among the individual five-digit product classes. Export and import percentages at the more detailed levels might, therefore, be slightly overstated.

Time Lag Between Output and Exports. There will be a lag between the time a commodity is produced or shipped by the producer and the time it is actually exported, especially when intermediaries (wholesalers, exporters, etc.) are involved. Ordinarily, this type of discrepancy is insignificant in annual figures.

"Direct" vs "Total" Commodity Exports and Imports. Export and import data do not include materials which are incorporated into other more finished products and exported or imported in finished form. Thus, by showing only direct exports and imports, the relation of exports to output and imports to apparent consumption for intermediate products is considerably understated.

Used Commodities. With a few exceptions, used or rebuilt commodities are classified in the same import or export codes as is new merchandise. Percentages are thus overstated to the extent that used or rebuilt products are significant in trade.

Geographic Area of Coverage. Import and export data reflect the movement of merchandise into and out of U.S. foreign trade zones, the U.S. Virgin Islands, and the U.S. customs territory (includes the 50 States, the District of Columbia, and Puerto Rico).

HISTORICAL NOTE

Data on mining machinery and equipment have been collected by the Bureau of the Census since 1961. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library. A list of these libraries may be obtained from the Bureau of the Census regional offices:

Office	Telephone
Atlanta, Georgia	(404) 881-2271
Boston, Massachusetts	(617) 223-2327
Charlotte, North Carolina	(704) 371-6142
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CONTACTS FOR DATA USERS

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